

REMARKS

In accordance with the foregoing, the specification and claims 1, 4-7,12, and 14-41 are amended. A substitute specification is provided as requested by the Examiner including claims as originally filed. No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended specification and claims are respectfully requested.

Claims 1-41 are pending and under consideration.

ITEM 5: OBJECTION TO SPECIFICATION

The Examiner objects to the specification as having:

no spacing between words on several lines on several pages of the specification, claims and the abstract. The Examiner found it difficult to read the lines and understand what was meant. The specification could cause numerous errors when printed, if the application is allowed. Therefore, the Examiner directs the Applicants to submit substitute specification, including claims and abstract with proper spacing between words and without aligning the right margin, for further consideration of the application.

A substitute specification is provided as requested by the Examiner, and withdrawal of the objection to the specification is requested.

ITEM 7: OBJECTION TO CLAIM 5

The Examiner objects to claim 5 because of informalities.

Claim 5 is amended as suggested by the Examiner and withdraw of the objection is requested.

ITEM 9: REJECTION OF CLAIMS 14-41 UNDER 35 U.S.C. 101

The Examiner rejects claims 14-41 under 35 U.S.C. 101 contending the claims are directed to non-statutory subject matter.

Claims 14-41 are amended as suggested by the Examiner.

Applicants submit claims 14-41, as amended, comply with 35 U.S.C. 101 and withdrawal of the rejection is requested.

TRAVERSE OF REJECTIONS

Item 13 of the Action rejects independent claims 1, 13 and 14 and dependent claims 3, 6, 17, 32 and 35 under 35 U.S.C. §103(a) as being unpatentable over Chen (U.S.P. 6,466,898) in view of Dearth et al. (U.S. P. 6,345,242) and Dearth et al. (U.S. Patent 5,812,824). Item 20 rejects independent claims 12 and 41 under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Dearth '242 and Dearth '824 and further in view of Hollander U.S.P. 6,347,388.

Items 14-19 and 21-23 reject dependent claims 2, 4-5, 7-11, 15-16, 18-31, 33-34, and 36-40 under 35 U.S.C. 103(a) as being unpatentable over Chen in view of combinations of Dearth '242, Dearth '824, Kinzelman et al. (U.S. P. 5,594,741), De Yong et al. (U.S.P. 5,355,435), Thekkath et al. (U.S.P. 6,490,642), Markov (U.S. P. 6,314,552), Kasuya (U.S.P. 6,077,304) and Furuichi (U.S. P. 5,437,037).

The rejections are traversed.

Independent claims 1, 12, 13, 14, and 41 (all as amended) recite a method of simulating an operation of a logical unit, including "requesting a resource in which a thread manager, which controls threads each forming an execution unit of a program, makes a request for a hardware resource needed for execution of each of threads representative of a series of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to a resource manager which manages said hardware resource; allocating a resource in which said resource manager allocates said hardware resource meeting said request to said thread in accordance with a rule prescribed in advance; and controlling a thread in which said thread manager controls an execution state of said thread in accordance with a result of the allocation made by said resource manager, said thread manager and said resource manager executing said requesting, allocating, and controlling repeatedly in cooperation with each other until the execution of said thread reaches completion while dynamically allocating necessary hardware resources to the thread by said resource manager every time the generated thread is executed simulating the operation of said logical unit to be conducted up to the completion." (Emphasis added).

The rejections are traversed.

As provided in MPEP §2143.03 "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F. 2d 1981, (CCPA 1974)."

Applicants submit that the cited references alone, or in combination, do not teach features recited by the claims.

The Action concedes that Chen does not teach a method requesting a resource "in which a thread manager makes a request for a hardware resource needed for execution of each of threads, to a resource manager which manages the hardware resource."

The Action also concedes that Chen does not teach a method "allocating a resource "in which the resource manager allocates the hardware resource meeting the request to the thread

in accordance with a rule prescribed in advance."

The Action also concedes that Chen does not teach a method controlling "an execution state of the thread in accordance with a result of the allocation made by the resource manager, the thread manager and the resource manager executing the steps repeatedly in cooperation with each other until the execution of the thread reaches completion, for simulating the operation of the logical unit to be conducted up to the completion."

However, the Examiner contends it is obvious to modify Chan to include such features.

Applicants submit that, however, even an *arguendo* combination of the references merely teaches avoiding a collision of reservation requests for hardware resource tests only at a time of parallel execution of threads.

That is, Applicants submit that none of the art, alone or in combination teaches, for example, a method, including "requesting, allocating, and controlling repeatedly in cooperation with each other until the execution of said thread reaches completion while dynamically allocating necessary hardware resources to the thread while dynamically allocating necessary hardware resources to the thread by said resource manager every time the generated thread is executed, for simulating the operation of said logical unit to be conducted up to the completion." (Emphasis added).

The cited art, alone or in combination, teach away from a dynamic allocation by a resource manager in allocating necessary hardware resources every time a generated thread is executed. Dearth '242 merely teaches (see, for example, col. 5) that execution of a user thread is suspended substantially immediately after registration of a test. Dearth '824 merely teaches (see, for example, col. 6) that when the subject test is granted reservation of all reserved devices, hub signals the subject test to awaken, i.e., to resume execution.

Further, since the primary reference relied on by the Examiner, i.e., Chan (see, for example, Abstract and col. 4, starting at line 5) teaches execution of logic in hardware description language (HDL), it is understood in the art that an architecture (hardware resources) corresponding to "functions" to be realized is described in threads.

Applicants submit that there is no reasonable chance of success of combining the references to perform "requesting, allocating, and controlling repeatedly in cooperation with each other until the execution of said thread reaches completion while dynamically allocating necessary hardware resources to the thread by said resource manager every time the generated thread is executed simulating the operation of said logical unit to be conducted up to

the completion," that is a design re-verification, without substantial changes in descriptions of "functions" upon a change of architecture.

Conclusion

Since features recited by independent claims 1, 12, 13, 14, and 41 (and respective dependent claims) are not taught by the cited art, alone or in combination, and there is no reasonable chance of success to combine the art, in a manner as the Examiner suggests, the rejections *prima facie* obviousness is not established and the rejection should be withdrawn. the rejection should be withdrawn and claims 1-41 allowed.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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By: Paul W. Bobowiec
Paul W. Bobowiec
Registration No. 47,431

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501